GPLUS EDUCATION

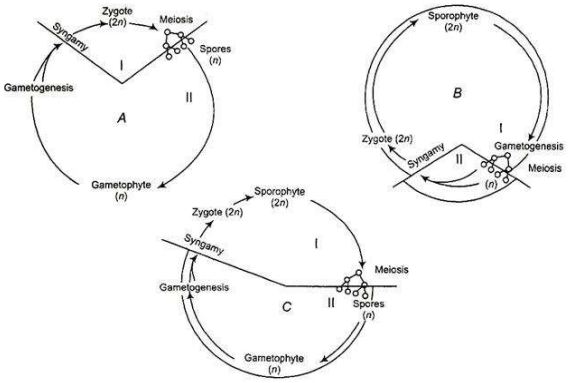
Date :
Time : **BIOLOGY**
Marks :

PLANT KINGDOM

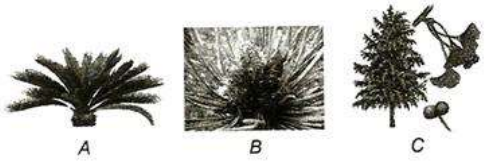
Single Correct Answer Type

1. In pteridophytes, gametophytes require ...A... to grow
   a) Cool, damp and shady places b) Dry places
   c) Terrestrial area d) Water
2. Which one of the following pairs of plants are not seed producers?
   a) Fern and *Funaria* b) *Funaria* and *Ficus*
   c) *Ficus* and *Chlamydomonas* d) Fern and *Pinus*
3. A bryophyte, which harbours a nitrogen fixing blue-green alga in its thallus, is
   a) *Pogonatum* b) *Riccia* c) *Marchantia* d) *Anthoceros*
4. Rhodophytes are commonly called as
   a) Blue-green algae b) Red algae c) Brown algae d) Green algae
5. This place in India is called 'The Golden Mine of Liverworts'.
   a) Eastern Himalayas b) Western Himalayas c) Western Ghats d) Eastern Ghats
6. In the alternation of generations the sporophytic generations is ...A... and the gametophytic generation is ...B... . Here A and B refer to
   a) A-2n; B-n b) A-n; B-2n c) A-n; B-n d) A-2n; B-2n
7. Chloroplasts of *Spirogyra* have
   a) Spiral margin b) Smooth of waxy margin
   c) Smooth margin d) None of these
8. In *Selaginella* the adaxial outgrowth from the base of leaf is called
   a) Ligule b) Velum c) Rhizophore d) Glossopodium
9. In *Dryopteris*, the opening mechanism of sporangium is effectively operated by
   a) Stalk b) Stomium c) Annulus d) None of these
10. Calcium encrustation and larvicidal properties are present in
    a) *Chara* b) *Oscillatoria* c) Diatoms d) *Canlerapa*
11. Iodine is obtained from
    a) *Laminaria* b) *Chlorella* c) *Polysiphonia* d) *Porphyra*
12. Number of archegonia in *Cycas* is
    a) 8 b) 4 c) 1 d) 2
13. Which of the following in moss capsule is haploid/gametophytic tissue?
    a) Annulus and peristome b) Calyptra and spore
    c) Columella and theca d) Operculum foot and seta
14. In angiosperms seeds are enclosed by
    a) Flowers b) Fruits c) Ovule d) Parianth
15. Double fertilisation involves
    a) Syngamy and triple fusion b) Double fertilisation
    c) Development of antipodal cell d) Development of synergids
16. Which one of the following is a gymnosperm?
    a) Mango b) Walnut c) *Funaria* d) Chilgoza
17. Which of the following propagates through leaf-tip?
    a) Walking fern b) Sprout-leaf plant c) *Marchantia* d) Moss

18. The spores in the moss plant are formed in
    a) Foot b) Seta c) Capsule d) Both (b) and (c)
19. Antherozoids of *Dryopteris* are
    a) Multiciliated and coiled b) Multiciliated and sickle-shaped
    c) Biciliated and coiled d) Biciliated and sickle-shaped
20. Which has vascular tissue, produces spores but does not have seeds?
    a) Bryophyta b) Pteridophyta c) Gymnosperms d) Angiosperms
21. Which of the following correctly represents the type of life cycle patterns from the options given?



    a) A-Haplontic, B-Diplontic, C-Haplo-diplontic b) A-Diplontic, B-Haplontic, C-Haplo-diplontic
    c) A-Haplo-diplontic, B-Diplontic, C-Haplontic d) A-Diplontic, B-Haplo-diplontic, C-Haplontic
22. Consider the following statements about bryophyte plants
    I. The tea prepared from *polytrichum commune* is used to dissolve kidney and gall bladder stones
    II. Many chemical products such as alcohol, ammonium sulphate, paraffin, brown dye, etc., can be obtained from peat
    Choose the correct option
    a) I is true, II is false b) II is true, I is false
    c) Both I and II are true d) Both I and II are false
23. Moss capsule represents a
    a) Gametophyte b) Sporophyte c) Part of protonema d) Part of sorus
24. The gametophyte is not an independent, free living generation in
    a) *Adiantum* b) *Marchantia* c) *Pinus* d) *Polytrichum*
25. Which one is not the feature of *Cycas*?
    a) Unbranched stem
    b) Pinnate leaves
    c) The male or female cones may be borne on the different tree
    d) Archegonia is absent
26. The members of brown algae (class-Phaeophyceae) have gelatinous coating outside the, cellulosic cell wall called
    a) Algin b) Glycoalgin starch c) Polyalginate d) Polyolefin
27. In Bryophtya, the adult plant body is
    a) Sporophyte b) Epiphyte c) Sporophyll d) Gametophyte
28. Difference between algae and bryophytes is
    a) Terrestrial habitat b) Sterile jacket c) Biflagellate gametes d) None of the above
29. The correct names of gymnospermic plant *A*, *B* and *C* shown in figure below are



    a) A-*Cycas*, B-*Ginkgo*, C-*Pinus* b) A-*Cycas*, B-*Pinus*, C-*Ginkgo*

c) A-*Ginkgo*, B-*Cycas*, C-*Pinus* d) A-*Pinus*, B-*Cycas*, C-*Ginkgo*

30. Which one of the following is an example of chlorophyllous thallophyte?
a) *Volvariella* b) *Spirogyra* c) *Nephrolepis* d) *Gnetum*

31. Which of the following is known as pond silk?
a) *Spirogyra* b) *Ulothrix* c) *Nostoc* d) *Anabaena*

32. Which of the following does not belong to class-Phaeophyceae (brown algae)?
a) *Ectocarpus* and *Dictyota* b) *Laminaria* and *Sargassum*
c) *Fucus* and *Dictyota* d) *Polysiphonia* and *Gelidium*

33. In pteridophyte, the sporophytes consist of leaf-like appendages called
a) Megaphylls b) Sporophylls c) Thalli d) Sporangia

34. Meiosis in *Spirogyra*, *Ulothrix*, *Chlamydomonas* and most of the algae/thallophytes is
a) Sporic b) Zygotic c) Gametic d) Unequal

35. In *Funaria*, stomata are present on the
a) Stem b) Leaves c) Capsule d) Apophysis

36. Gymnosperms are characterised by
a) Multiflagellate sperms b) Nacked seeds
c) Winged seeds d) Seeds inside fruits

37. Which of the statement is correct about *Marchantia*?
I. Plant body is thallus-like structures closely attached to substrate
II. Sporophyte is differentiated into food, seta and capsule
III. Gemma cup located on the thalli
a) I and II b) I and III c) II and III d) I, II and III

38. Heterocysts are found in
a) Cyanophyceae b) Chlorophyceae c) Phaeophyceae d) Rhodophyceae

39. Mosses occur in moist place because
a) The cannot grow on land b) Their gamete fuses in water
c) They lack vascular tissue d) They lack root and stomata

40. Angiospermic plants are characterised by
I. double fertilisation
II. triploid endosperm
III. Diploid endosperm
Choose the correct option from the following regarding above statements
a) I and II are correct b) I and III are correct
c) II and III are correct d) I, II and III are correct

41. Read carefully the following statement about the sexual reproduction in ferns
I. Water is essential for fertilisation
II. Male gametophyte bears antheridia, while female gametophyte bears archegonium, which produces antherozoids and egg cell, respectively
III. Antherozoids and egg cell fuses to give rise zygote. Zygote develops into young embryo. Embryo give rise to sporophyte
Which of the statements given above are correct?
a) I and II b) II and III c) I and III d) I, II and III

42. Which of the following part of *Funaria* sporophyte is involved in the dispersal of spores?
a) Calyptra b) Operculum c) Peristome d) Annulus

43. In …A… gametophytic phase is dominant, while in …B… sporophytic phase in dominant.
Identify the A and B. choose the correct option
a) A-pteridophytes; B-algae b) A-bryophytes; B-pteridphytes
c) A-gymnosperm; B-fungi d) A-angisperms; B-algae

44. In which of the following group would you place a plant, which produce seeds but lacks fruits?
a) Fungi b) Pteridophytes

c) Bryophytes d) Gymnosperms

45. The bryophytes are fundamentally terrestrial plants but require presence of water to complete their life cycle. The water is needed for
I. dehiscence of antheridia
II. liberation of antherozoids
III. transfer of sperms from antheridia to archegonia
IV. opening of archegonial neck
V. the movement of antherozoids into the archegonial neck
Which of the statements given above are correct?
a) I, II and IV b) II, III, IV and V c) III, IV and V d) I, II, III, IV and V

46. In gymnosperms, the nucellus is protected by envelops and this composite structure is known as
a) Ovule b) Ovary c) Anther d) Strobili

47. *Pinus* belong to the class
a) Gnetopsida b) Cycadopsida c) Coniferopsida d) Sphenopsida

48. In comparition to angiosperm, which one of the following algae exhibits haplo-diplontic life cycle
a) *Volvox* b) *Chlamydomonas* c) *Ectocarpus* d) *Fucus*

49. Storage bodies, pyrenoids in the chloroplast contain
a) Protein and starch b) Carbohydrate and protein
c) Polysaccharide and protein d) Starch and lipid

50. The red colour of 'red sea' is due to which of the following blue-green algae?
a) *Chlamydomonas* b) *Anabaena* c) *Microcystis* d) *Trichodesmium*

51. In *Funaria*, the number of peristomial teeth is
a) 6 b) 10 c) 16 d) 32

52. The members of Phaeophyceae are commonly called
a) Green-algae b) Blue algae c) Brown algae d) Golden algae

53. Two adjacent filaments of *Spirogyra affinis* each 10 cells participating in reproduction. How many new *Spirogyra* plants are produced during sexual reproduction?
a) 5 b) 10 c) 20 d) 40

54. Which group of plant constitute the lower bryophytes?
a) Liverworts b) Mosses c) Anthocerotales d) Jungermanniales

55. Algal zone is present in
a) Normal root of *Cycas* b) Coralloid root of *Cycas*
c) Normal root of *Pinus* d) Stem of *Cycas*

56. Isogamy is found in
a) *Spirogyra* b) *Chlamydomonas* c) Both (a) and (b) d) *Fucus*

57. Cleavage polyembryony occurs in
a) *Pinus* b) Mini *Cycas* c) *Cycas* d) *Ephedra*

58. Zygote of *Spirogyra* produces four haploid nuclei in which
a) One is functional b) Two are functional c) Three are functional d) All are functional

59. The members of brown algae are found primarily in
a) Freshwater habitat b) Marine habitat
c) Terrestrial habitat d) On moist rock

60. A prokaryotic autotrophic nitrogen fixing symbiont is found in
a) *Cycas* b) *Cicer* c) *Pisum* d) *Alnus*

61. Sporophytic generation is dominant phase in the life cycle of
a) *Marchentia* b) Ferns c) Mosses d) Liverworts

62. Choose the incorrect statement about mosses?
a) Sexual reproduction occurs by the fusion of antheridia and archegonia, which are produced at the apex of the leafy shoots
b) Sporophyte is differentiated into food, seta and capsule

c) Seta and capsule bears spores, which give rise to gametophyte after meiosis
d) The sporophyte in mosses is more elaborate than that in liverworts

63. Gemmae are asexual buds, which originate from small receptacles called gemma cups. These are found in
a) *Funeria* b) *Marchentia* c) *Fern* d) *Sphagnum*

64. Tallest flowering tree is
a) *Pinus* b) *Cedrus* c) *Sequoia* d) *Eucalyptus*

65. Oogamous means
a) Fusion between female and male gametes. Both are similar in size
b) Fusion between one large female gamete and a smaller non-motile male gamete
c) Fusion between one large female gamete and a smaller motile male gamete
d) Fusion between one smaller female gamete and a large motile male gamete

66. Which is wrong in respect to bryophytes?
a) Water is essential for sexual reproduction
b) Presence of antheridium
c) Presence of ciliated sperms
d) Presence of autotrophic independent sporophyte

67. *Nephrolepis* is a
a) Bryophyte b) Pteridophyte c) Gymnosperm d) Angiosperm

68. 'Club moss' belongs to
a) Algae b) Pteridophyta c) Fungi d) Bryophyte

69. Isogamous mean
I. both gametes are similar in size and non-motile,
II. both gametes are dissimilar in size and motile
III. both gametes are similar in size and motile
IV. both gametes are dissimilar in size and non-motile
Which of the statement(s) given above is/are correct?
a) I and II b) I and III c) II and IV d) Only IV

70. Characters of both conifers and cycads are found in
a) *Ginkgo* b) *Ephedra* c) *Cupressus* d) *Tsuga*

71. The amphibians of plant kingdom are
a) Multicellular non-motile algae
b) Bryophytes with simple internal organization
c) Unicellular motile algae
d) Pteridophytes with complex internal organization

72. Female sex organ in a flower is
a) Carpel or pistil
b) Carpel or androecium
c) Shot
d) Stamen

73. Which economically important product is obtained from *Cycas circinalis*?
a) Timber b) Sago c) Essential oil d) Resin

74. Artificial system of classification was given by …A… and based on …B…
Fill the blanks with respect to A and B. choose the correct option
a) A-Aristotle; B-anatomical characters
b) A-Linnaeus; B-cytological information
c) A-Linnaeus; B-morphological characters
d) A-Haeckel; B-morphological characters

75. Sea weeds are important source of
a) Chlorine b) Fluorine c) Iodine d) Bromine

76. Terms artificial, natural and phylogenetic are related to types of
a) Cytotaxonomy
b) Classification of plants
c) Classification of animals
d) Both (b) and (c)

77. Holdfast, stipe and frond constitutes the plant body in case of

a) *Volvox* b) *Chara* c) *Laminaria* d) *Chlamydomonas*

78. In Chlorophyceae, the mode of sexual reproduction is
a) Anisogamy b) Oogamy c) Isogamy d) All of these

79. The positive evidence of aquatic ancestory of bryophytes is indicated by
a) Ciliated sperms b) Gametophytic body c) Biflagellate gametes d) Peristomial teeth

80. In gymnosperm the roots are generally
a) Respiratory root b) Prop root c) Tap root d) Adventitious root

81. Which type of chloroplasts are present in the members of class-Chlorophyceae?
a) Discoid and plate-like b) Reticulate and cup-shaped
c) Spiral or ribbon-shaped d) All of the above

82. Seed habit is linked to
a) Homospory b) Heterospory c) Parthenogenesis d) Parthenocarpy

83. Algae occur in/on
a) Fresh and marine water b) Moist stones
c) Moist soils and wood d) All of these

84. Which of the following plant group is considered as first terrestrial plants to possess vascular tissues xylem and phloem?
a) Bryophytes b) Pteridophytes c) Gymnosperm d) Angiosperm

85. At the base of seta of capsule of moss, there is a haploid brownish growth called
a) Calyptra b) Perigonium c) Vaginula d) Perichaetial

86. *Sphaerocarpus* belongs to
a) Bryophyte b) Pteridophyta c) Gymnosperms d) Angiosperms

87. Egg apparatus of angiosperms consist of
a) One synergid and two egg cells b) Two synergids and one egg cell
c) One central cell, two polar nuclei and three antipodal cells d) One egg cell, two polar nuclei and three antipodal cells

88. Meiosis in *Dryopteris* takes place during
a) Gamete formation b) Spore germination c) Zygote formation d) Spore formation

89. Which of the following plants produces seeds but not flowers?
a) Maize b) Mint c) Peepal d) *Pinus*

90. Identify the wrong statements
a) The ovule develops into seed b) The ovary develops into fruit
c) The triple nucleus develops into endosperm d) Double fertilisation is the fusion of male gamete with egg

91. Select one of the following pairs of important features distinguishing *Gnetum* from *Cycas* and *Pinus* and showing affinities with angiosperms
a) Absence of resin duct and leaf venation
b) Presence of vessel elements and absence of archegonia
c) Perianth and two integuments
d) Embryo development and apical meristem

92. From which of the following plants is a medicine for respiratory disorders obtained?
a) *Ephedra* b) *Eucalyptus* c) *Cannabis* d) *Saccharum*

93. In *Funaria*, antheridial branch is called
a) Male flower b) Female head c) Male cone d) Female cone

94. Which of the following is not the feature of gymnosperms?
a) Parallel venation b) Perennial plants
c) Distinct branches (long and short branches) d) Xylem with vessels

95. The alga used in space research is
a) *Cephaleuros* b) *Gelidium* c) *Chlorella* d) *Gracilaria*

96. The cones bearing megasporophyll with ovules are called

a) Male strobili b) Female strobili c) Megasporangia d) Microsporangia

97. In *Spirogyra* the sporophytic stage is dominant
a) True b) False
c) Some times (a) and (b) d) Neither (a) nor (b)

98. Ovules are borne on
a) Microsporophyll b) Megasporophyll c) Macrosporophyll d) Both (a) and (c)

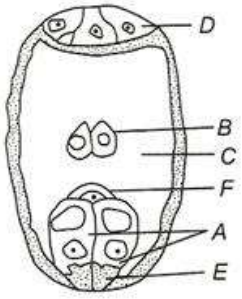
99. Of the following groups, which secrete and deposit calcium carbonate and appear like corals?
a) Green algae b) Brown algae c) Blue-green algae d) All of these

100. In pteridophytes, phloem is without
a) Sieve cells b) Sieve tubes c) Companion cells d) Bast fibres

101. In algae the flagellate (motile) spore is called
a) Aplanospore b) Endospore c) Zoospore d) Akinetes

102. Ovules of gymnosperm is
a) Bitegmic b) Unitegmic c) Naked d) Both (b) and (c)

103. In the given diagram, parts labelled as, A, B, C, D, E and F are respectively identified as



a) A-Synergids, B-Polar nuclei, C-Central cell, D-Antipodals, E-Filiform apparatus, F-Egg cell
b) A-Polar nuclei, B- Egg cell, C-Antipodals, D-Central cells, E-Filiform apparatus, F- Synergids
c) A-Egg cell, B- Synergids, C- Central cells, D- Filiform apparatus, E- Antipodals, F- Polar nuclei
d) A-Central cell, B-Polar nuclei, C- Filiform apparatus, E-Synergids, F-Egg cell

104. Agar, one of the commercial products obtained from red algae is used
a) To grow microbes b) In preparations of ice-creams and jellies
c) Both (a) and (b) d) In sizing textiles and papers

105. Phycoerythrin is present in
a) *Polysiphonia* b) *Laminaria* c) *Kelps* d) *Chlamydomonas*

106. Protonema is formed in
a) Moss b) Liverworts c) Ferns d) *Cycas*

107. Consider the following statements regarding the major pigments and stored food in the different groups of algae and select the correct options given.
I. In Chlorophyceae, the stored food material is starch and the major pigments are chlorophyll-a and d.
II. In Phaeophyceae, laminarian is the stored food and major pigments are chlorophyll-a and b.
III. In Rhodophyceae, floridean starch is the stored food and major pigments are chlorophylla-a, d and phycoerythrin.
a) I is correct, but II and III are incorrect b) I and II are correct, but III is incorrect
c) I and III are correct, but II is incorrect d) III is correct, but I and II are incorrect

108. Read carefully the given statements about algae and choose the correct option
I. The plant body is thalloid
II. Mainly aquatic
III. Reproduction takes place by vegetative, asexual and sexual
IV. *Volvox* and *Ulothrix* are the colonial form of algae
a) I, II and III b) II, III and IV c) I, III and IV d) I, II, III and IV

109. In angiosperms, the pollen grains and ovules are produced in special structure called
a) Fruit b) Seed c) Flower d) Lamina

110. The members of Chlorophyceae are commonly called
a) Red algae b) Brown algae c) Green algae d) Blue-green algae
111. Resin and turpentine are products of
a) Teak b) Oak c) *Eucalyptus* d) Pine
112. In *Cycas*, pollination occurs at ….. celled stage.
a) One b) Two c) Three d) Four
113. Moss peat s used as a packing material for sending flowers and live plants to distant places because
a) It is easily available b) It is hygroscopic
c) It reduces transpiration d) It serves as a disinfectant
114. In the angiosperm ovule, central cell of the embryo sac prior to the triple fusion, contains
a) A single haploid nucleus b) One diploid nucleus
c) One haploid polar nuclei d) One diploid and one haploid nuclei
115. The unique feature of bryophytes compared to other green plant group is that
a) They produce spores
b) They lack vascular tissue
c) They lack roots
d) There sporophytes is attached to the gametophyte
116. *Cycas* leaflets are
a) Sessile, straight, oval b) Sessile, straight, linear-lanceolate
c) Sessile, straight, spiny d) Sessile, smooth, twisted
117. Which of the following are called vascular cryptogams?
a) Pteridophytes b) Bryophytes c) Gymnosperms d) Algae
118. In gymnosperms the dominate phase is …A… . They are heterosporous, produce …B… and …C… . Here, A, B and C refers to
a) A-sporophyte, B-haploid microspores, C-haploid megaspores
b) A-gametophyte, B-haploid microspores, C-diploid megaspores
c) A-sporophyte, B-diploid microspores, C-diploid megaspores
d) A-gametophyte, B-diploid microspores, C-haploid megaspores
119. Algae are
a) Chlorophyll bearing autotroph b) Simple and thalloid
c) Both (a) and (b) d) Heterotroph
120. Consider the following statements
I. They reproduce asexually by non-motile spores and sexually by non-motile gametes
II. In this class, sexual reproduction is oogamous and accompanied by complex post-fertilisation developments
III. The common members are *Polysiphonia*, *Porphyra*, *Gracilaria* and *Gelidium*
The above characteristics are belongs to which class of algae
a) Chlorophyceae b) Phaeophyceae c) Both (a) and (b) d) Rhodophyceae
121. In gymnosperm dominant phase is
a) Sporophyte b) Gametophyte c) Haploid d) Diploid
122. In liverworts asexual reproduction takes place by
a) Gemmae and fragmentation of thalli
b) Fragmentation and zoospores
c) Gemmae formation and spores formation
d) Isogamy and anisogamy
123. Which of the following is the amphibians of the plant kingdom?
a) Angiosperms b) Pteridophytes c) Gymnosperm d) Byrophytes
124. Identify the scientists worked extensively on chlorophyllous and non-chlorophyllous thallophytes, respectively.
I. Iyenger II. Swaminathan

III. Metha IV. Maheswari

a) I and IV b) I and III c) II and III d) III and IV

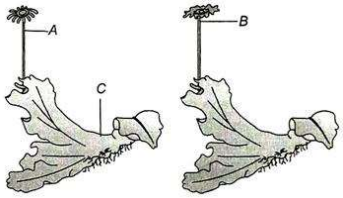
125. Sago starch is obtained from

a) *Cedrus* b) *Taxus* c) *Pinus* d) *Cycas*

126. In angiosperms endosperm is

a) Haploid b) Diploid c) Triploid d) None of the above

127. Observe the diagrams given below and choose the correct option out of *A* of *C*, in which all the three items *A*, *B* and *C* are rightly identified



a) A-Antheridiophore, B-Archegoniophore, C-Endospore

b) A-Archegoniophore, B-Antheridiophore, C-Gemma cup

c) A- Antheridiophore, B-Archegoniophore, C-Gemma cup

d) A-Archegoniophore, B- Antheridiophore, C-Seta cup

128. Which of the following pteridophytes is heterosporous in nature?

a) *Selaginella* and *Salvinia* b) *Adiantum* and *Equisetum*

c) *Psilotum* and *Lycopodium* d) *Adiantum* and *Psilotum*

129. Which statement is incorrect about *Pinus*?

a) The male and female strobili may be produced on the same tree

b) The male or female strobili may be produced on different trees

c) Male and female sporophylls born on same strobilus

d) Male and female sporophylls born on different strobilus

130. Find out the mis-matched pair.

a) Agar – Polymer of glucose and sulphur containing carbohydrates

b) Chitin – Polymer of glucosamine

c) Peptidoglycan – Polysaccharide linked to peptides

d) Lipopolysaccharides – A complex of lipid and polysaccharide

131. Gymnosperms are naked seeded plants because

a) There is no fruit b) There is no ovule

c) There is no fertilization d) There is no ovary and fruit

132. Consider the following statements about green algae

I. Green algae are green due to the presence of chlorophyll-*a* and *b* pigments localised in chloroplast

II. Algae store food in form of starch in a specialised structures called pyrenoids located in chloroplast. Food may be stored in form of oil droplets

III. Vegetative reproduction occurs through cell division, fragmentation, stolons and tubers

Which of the statements given above are correct?

a) I and II b) I and III c) II and III d) I, II and III

133. Stamen consists of

a) Filament and anther b) Style and stigma c) Filament and pistil d) Anther and pistil

134. Cycads are

a) Homosporous and dioecious b) Homosporous and monoecious

c) Heterosporous and dioecious
d) Heterosporous and monoecious

135. 'Chilgoza' a gymnospermic seed that is eaten as dry fruit is produced by
a) *Pinus roxburghii*
b) *Pinus geradiana*
c) *Ginkgo biloba*
d) *Cedrus deodara*

136. In *Funaria* capsule, dispersal of spores takes place through
a) Peristomial teeth
b) Annulus
c) Calyptra
d) Operculum

137. The plant body of all bryophytes are haploid and thallus like having
a) True root, stem and leaves
b) Root-like, leaf-like or steam like structure
c) Vascular tissues (xylem and phloem)
d) Complex tissues

138. Though *Cycas* has two cotyledons, this is not included in dicot because
a) Of naked ovule
b) They have megaspore
c) Appears as palm tree
d) Has compound leaves

139. Which one of the following is called maiden-hair fern?
a) *Dryopteris*
b) *Pteris*
c) *Adiantum*
d) *Lycopodium*

140. In gymnosperms, the pollen chamber represents
a) A cell in the pollen grain in which the sperms are formed
b) A cavity in the ovule in which pollen grains are stored after pollination
c) An opening in the megagametophyte through which the pollen tube approaches the egg
d) The microsporangium in which pollen grains develop

141. Cyanobacterium is an algae having
a) Blue-green pigment
b) Red pigment
c) Brown pigment
d) Yellow-brown pigment

142. A mature pollen grain of *Pinus* has
a) 2 cells
b) 3 cells
c) 4 cells
d) 5 cells

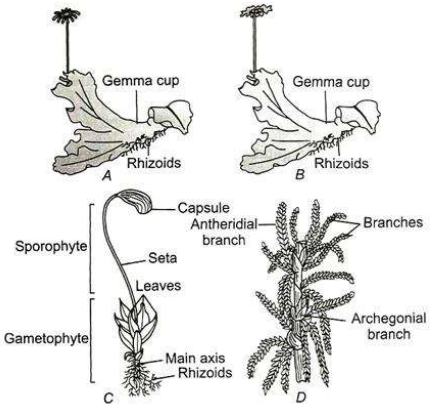
143. Mannitol is reserve food in
a) Rhodophyceae
b) Chlorophyceae
c) Phaeophyceae
d) Xanthophyceae

144. In pteridophytes spore germinate to give rise to
a) Thalloid gametophytes called prothallus
b) Thalloid sporophytes called prothallus
c) Thalloid sporocarp
d) Thalloid, photosynthesis sporophyte

145. Gymnosperms include
a) Medium-sized trees
b) Tall tree
c) Shrubs
d) All of these

146. In homosporous pteridophyte, the gametophyte is
a) Vascular
b) Monoecious
c) Dioecious
d) May be monocious or dioecious

147. Identify the plants shown in figure and select the correct option



a) A-*Marchantia* (male thallus), B-*Marchantia* (female thallus), C-*Funaria,* D-*Sphagnum*
b) A-*Marchantia* (male thallus), B-*Marchantia* (female thallus), C- *Sphagnum,* D-*Funaria*

c) A-*Marchantia* (male thallus), B-*Marchantia* (female thallus), C-Polytrichum, D-Anthoceros
d) A-*Marchantia* (female thallus), B-*Marchantia* (male thallus), C-*Anthoceros*, D-*Polytrichum*

148. Anther produces
a) Pollen grains b) Spores c) Gametes d) Egg cell

149. The only positive evidence of aquatic ancestry of bryophyte is
a) Thread like protonema b) Green colour
c) Some forms are still aquatic d) Ciliated sperms

150. The heart-shaped form of prothallus represents
a) Dioecious b) Monoecious sporophyte
c) Monoecious gametophyte d) None of the above

151. Which of the following statements is right?
a) Fronds are found in bryophytes b) Multiciliate sperms are found in angiosperms
c) Diatoms produce basidiospores d) Heterocysts are found in *Nostoc*

152. Classification on the basis of chemical constituents of plant is known as
a) Molecular taxonomy b) Chemical taxonomy
c) Chemotaxonomy d) Chemosynthetic classification

153. Which of the following liverworts have thalloid plant body?
a) *Marchentia* b) *Funeria* c) *Sphagnum* d) *Pogonatum*

154. Phycology is the study of
a) Algae b) Fern c) Fungi d) Bryophytes

155. Consider the following statements about bryophytes
I. Sexual reproduction is oogamous type
II. The sex organs are multicellular and jacketed with sterile jacket
III. The haploid gametophytes is dominant stage in the life cycle bryophytes
Which of the statements given above are correct?
a) I and II b) I and III c) II and III d) I, II and III

156. Chlorophyll-*b* is not present in
a) Green algae b) Bryophytes c) *Spirogyra* d) Blue-green algae

157. Natural system of classification were based upon
a) Structural embryology b) Phytochemistry
c) Anatomy d) All of the above

158. Largest moss is
a) *Pogonatum* b) *Funaria* c) *Dawsonia* d) *Polytrichum*

159. Which of the following petridophytes belong to class-Pteropsida?
a) *Equisetum* and *Psilotum*
b) *Lycopodium* and *Adiantum*
c) *Selaginella* and *Pteris*
d) *Pteris* and *Adiantum*

160. *Cycas revoluta* is popularly known as
a) Date palm b) Sago palm c) Sea palm d) Royal palm

161. Pteridophytes are also known as
a) Cryptogams b) Vascular crytogams
c) Amphibious plants d) Phanerogams

162. Endosperm of gymnosperm is
a) Diploid b) Tetraploid c) Haploid d) None of the above

163. Have capacity of absorbing water used to replace cotton and used as a fuel is
a) *Marchantia* b) *Riccia* c) *Sphagnum* d) *Funaria*

164. Which of the following plant materials, is an efficient water imbibant?
a) Lignin b) Pectin c) Agar d) Cellulose

165. The first plants to appear after a forest fire are the ferns, this is because of the survival of their

a) Spores b) Leaves c) Fronds d) Rhizomes

166. If you are asked to classify the various algae into distinct groups, which of the following characters you should choose?
a) Types of pigments present in the cell b) Nature of stored food materials in the cell
c) Structural organization of thallus d) Chemical composition of the cell wall

167. Which of the following is /are grouped under phanerogams?
a) Angiosperms b) Gymnosperms c) Pteridophytes d) Both (a) and (b)

168. Calyptra is derived from
a) Archegonia b) Capsule c) Antheridia d) Columella

169. Megaspore mother cell divides …A… to give rise …B… megaspores
Identify the A and B and choose correct option
a) A-mitotically; B-two b) A-mitiotically; B-four
c) A-amitotically; B-four d) A-dinomitotically; B-four

170. In *Cycas*
a) Archegonia are present b) Antheridia are present
c) Archegonia are absent d) Both (a) and (b)

171. In angiospermic plant pollen grain reaches to embryo sac after its germination on …A… and through …B… . Here A and B refer to
a) A-anther; B-micropyle b) A-stigma; B-pollen tube
c) A-stigma; B-micropyle d) A-anther; B-pollen tube

172. Largest gametophyte is found in
a) Angiosperms b) *Polytrichum* c) *Nephrolepis* d) *Cycas*

173. Which is the source of turpentine oil?
a) Gymnospermic wood b) Angiospermic wood c) Gymnospermic seed d) Angiospermic seed

174. What is the ratio of equational division that takes place in *Cycas* and angiosperms respectively during the formation of male gametes from pollen grains?
a) 3 : 2 b) 3 : 1 c) 2 : 1 d) 2 : 3

175. In moss, the sporophyte is differentiated into
a) Seta and capsule b) Foot and seta
c) Protonema, foot and capsule d) Foot, seta and capsule

176. In algae, sexual reproduction takes place through the fusion of two
a) Spores b) Fragments c) Gametes d) Zoospores

177. In *Spirogyra*, sometimes a ladder-like structure is present due to
a) Vegetative reproduction b) Asexual reproduction
c) Lateral conjugation d) Scalariform conjugation

178. Embryo sac consists of
a) One egg cell b) Two synergids
c) Three antipodal and two polar nuclei d) All of the above

179. Triple fusion in angiosperms is the fusion of second male gamete with
a) Two polar nuclei (secondary nucleus) b) Two antipodal cells
c) One antipodal cell d) Antipodal cell and one synergid cell

180. Carpel consists of
a) Style and stigma b) Style, stigma and pistil
c) Style, anther and pistil d) Anther, style and stigma

181. Which of the following is the difference between a monocotyledonous and a dicotyledonous plant?
a) Both are gymnosperms b) Monocot have two cotyledons, whereas dicot have one cotyledons
c) Monocot have one cotyledons whereas dicot have two cotyledons d) Monocot plants have one egg cell in embryo sac whereas dicot have two egg cell in embryo sac

182. Which of the following characteristic does not occur in *Pinus*?

a) The number of needles in a spur of *Pinus roxburghii* is three
b) Each vascular bundle in the long shoot of *Pinus* consists of xylem facing towards the centre of the shoot
c) Microsporophyll of *Pinus* bears two microsporangia
d) *Pinus* is a homosporous gymnosperm

183. Bryophytes are called amphibians of plant kingdom because
a) Their reproductive phase requires water
b) Their sex organs are multicellular and jacketed
c) They have tracheids
d) All of the above

184. Calyptra develops from
a) Venter wall of archegonium
b) Outgrowth of gametophyte
c) Neck wall of archegonium
d) Paraphysis of the archegonial branch

185. Species of *Sphagnum*, a moss, provides
a) Oil, that have long been used as fuel
b) Peat (fuel)
c) Agar-agar
d) Antibiotic

186. Spirogyral lateral conjugation takes place in
a) Heterosporous species
b) Homosporous species
c) Heterothallic species
d) Homothallic species

187. Which one of the following classes is included under gymnosperms?
a) Lycopsida b) Bryopsida c) Cycadopsida d) Pteropsida

188. Study the following and identify two characters found in both *Cycas* and *Pteris*.
I. Formation of motile male gametes.
II. Formation of haploid endosperm.
III. Formation of sporophyte directly from gametophyte without gametic union.
IV. Formation of archegonia in female gametophyte.
The correct match is
a) I and IV b) I and III c) II and IV d) III and IV

189. Iodine is found in algae
a) *Ulva* b) *Ulothrix* c) *Chlorella* d) *Laminaria*

190. The members of algae reproduce by
a) Vegetative method b) Asexual method c) Sexual method d) All of these

191. Consider the following statements about sexual reproduction in brown algae?
I. Sexual reproduction may be oogamous isogamous or anisogamous
II. Union of gametes take place in water or within the oogonium
III. The gametes are pear-shaped and bear two laterally attached flagella
Which of the statements given above are correct?
a) I and II b) I and III c) II and III d) I, II and III

192. Which of the following is known as 'bog moss'?
a) *Polytrichum* b) *Funaria* c) *Sphagnum* d) *Porella*

193. Which of the following has multiflagellate sperms?
a) *Equisetum* b) *Riccia* c) *Lycopodium* d) *Anthoceros*

194. Angiospermic plants are divided into
a) Dicot
b) Monocot
c) Both (a) and (b)
d) Heart wood plant and sapwood plant

195. *Cycas* seed is
a) Dicotyledonous
b) Monocotyledonous
c) Dicotyledonous, non-endospermic
d) Monocotyledonous, endospermic

196. The correct statements about bryophytes are
I. the sperms are biflagellate
II. the sperms are released into water and fuses with the egg to produce the zygote out side the body
III. zygotes undergoes reduction division immediately
IV. they produce a multicellular body called a sporophyte

a) I, II and III b) I, II and IV c) I and IV d) III and IV

197. Which of the following is pteridophytes belong to class-Pteropsida?
   a) *Equisetum* and *Psilotum*
   b) *Lycopodium* and *Adiantum*
   c) *Selaginella* and *Pteris*
   d) *Pteris* and *Adiantum*

198. The 13-celled male gametophyte in *Selaginella* is
   a) 12 cells of antheridium + 1 prothallial cell b) 10 cells of antheridium + 3 prothallial cells
   c) 8 cells of antheridium + 2 prothallial cells d) None of the above

199. In haplontic life cycle, the dominant generation is
   a) Sporophyte b) Gametophyte c) Both (a) and (b) d) None of the above

200. Carrageenin, a jelly-like substance is obtained from
   a) *Chondrus* b) *Fucus* c) *Sargassum* d) *Ulothrix*

201. While entering in the neck of a fern archegonium, sperms shows
   a) Phototaxy b) Chemotaxy c) Thermotaxy d) Cyclosis

202. Which one of the following plants is monoecious?
   a) *Marchantia* b) *Pinus* c) *Cycas* d) Papaya

203. A gymnospermic leaf carries 16 chromosomes. The number of chromosomes in its endosperm is
   a) 24 b) 16 c) 12 d) 8

204. Tea and coffee are affected by
   a) *Phytophthora* b) *Cephaleuros* c) *Herviella* d) *Albugo candida*

205. Which of the following groups of algae do not have eukaryotic organization?
   a) Green algae b) Blue-green algae c) Red algae d) Golden-brown algae

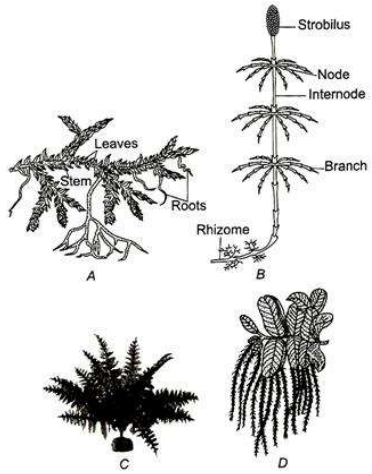
206. In gymnosperms, during pollination pollen grains are released from the microsporangium and transferred to
   a) Opening of the ovule b) Archegonia
   c) Ovary d) Stigma

207. In *Funaria*, the stomata are found on
   a) Foot b) Seta c) Capsule d) All of these

208. Diatoms belong to which class?
   a) Phaeophyceae b) Bacillariophyceae c) Chlorophyceae d) Xanthophyceae

209. Which of the following statement is correct about the gametophytic stage in the alteration of generation with in the life cycle?
   a) Generation that produces the gametes b) Generation that produces the spores
   c) Generation that produces vascular tissue d) The diploid generation

210. Go through the following figures and identify these plants (A, B, C and D)



   a) A-*Equisetum,* B-*Selaginella,* C-*Fern*, D-*Salvinia*

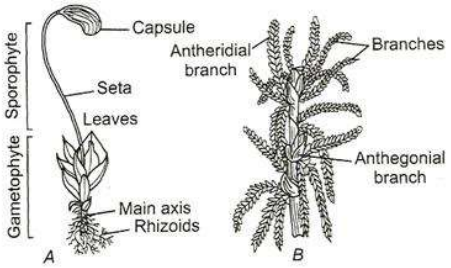
b) A-*Selaginella,* B-*Equisetum,* C-*Fern,* D-*Salvinia*
c) A- *Fern,* B-*Salvinia,* C- *Equisetum,* D-*Selaginella*
d) A- *Salvinia,* B- *Equisetum,* C- *Fern*, D-*Selaginella*

211. Transfer of pollen grain from anther to the stigma of ovary is called
a) Autogamy b) Pollination c) Syngamy d) Allogamy

212. Which of the following gymnosperms is a bushy trailing shrub?
a) *Ephedra* b) *Cycas* c) *Pinus* d) *Araucaria*

213. Which of the following taxa shows zooidogamous oogamy?
I. *Spirogyra* II. *Funaria*
III. *Pteris* IV. *Cycas*
a) I, II and III b) I, III and IV c) I, II and IV d) II, III and IV

214. Which of the following options correctly identifies the plants their groups from the following structure?



a) A-*Funaria*-Moss; B-*Sphagnum*-Moss
b) A-*Funaria*-Liverwort; B-*Sphagnum*-Moss
c) A-*Selaginella*-Bryophytes; B-*Funaria*-Liverwort
d) A-*Selaginella*-Pteridophytes; B-*Funaria*-Moss

215. Smallest flowering plant is
a) *Ginkgo* b) *Wolffia* c) Tulip d) Sweet bay

216. Gymnosperms lack fruits, why?
a) Seeds absent b) Ovule absent c) Ovary absent d) Ovary fused

217. *Funaria*, *Polytrichum* and *Sphagnum* are the examples of
a) Liverworts b) Ferns c) Mosses d) Pteridophytes

218. Pollen sac in *Cycas* is called
a) Megasporophyll b) Megasporangium c) Microsporophyll d) Microsporangium

219. Chlorenchyma is known to develop in the
a) Spore capsule of a moss b) Pollen tube of *Pinus*
c) Cytoplasm of *Chlorella* d) Mycelium of a green mould such as *Aspergillus*

220. Bryophytes are also called 'amphibians of the plant kingdom' because
a) Water is essential for reproduction
b) They are occur in only water
c) These plants can live in soil but are dependent on water for sexual reproduction
d) Water is essential for spore formation

221. Phylogenetic system of classification was given by
a) Engler and Prantl b) Aristotle c) Linnaeus d) Bentham and Hooker

222. Which was first photosynthetic organism?
a) Green algae b) Red algae c) Cyanobacteria d) None of these

223. Male and female gametophytes are independent and free-living in
a) Mustard b) Castor c) *Pinus* d) *Sphagnum*

224. *Chlamydomonas*, *Volvox*, *Ulothrix*, *Spirogyra* and *Chara* are the examples of
a) Class-Chlorophyceae (green algae)
b) Class-Phaeophyceae (brown algae)
c) Class-Rhodophyceae (red algae)

d) Class-Cyanophyceae (blue-green algae) and Chlorphyceae

225. Consider the following statements
I. Agar, one of the commercial products obtained from *Gelidium* and *Gracilaria* are used to grow microbes and in preparations of ice-creams and jellies
II. *Chlorella* and *Spirogyra* are used in sewage disposal ponds
III. Some species of marine algae like *Porphyra*, *Laminaria* and *Sargassum* are used as food
Which of the statements given above are correct?
a) I and II b) I and III c) II and III d) I, II and III

226. In gymnosperm, the multicellular female gametophyte is retained with in
a) Microsporangium b) Megasporangium c) Male gametophyte d) Archegonia

227. Choose the wrong pair
a) Hepaticopsida - *Marchantia* b) Lycopsida - *Selaginella*
c) Bryopsida - *Anthoceros* d) Pteropsida - *Dryopteris*

228. *Cycas circinalis* is a source of
a) Resin b) Timber c) Essential oil d) Starch

229. The endosperm in angiosperms develops from
a) Zygote b) Secondary nucleus
c) Chalazal polar nucleus d) Micropylar polar nucleus

230. A microsporophyll in *Pinus* has
a) One microsporangium on the adaxial side b) One microsporangium on the abaxial side
c) Two microsporangia on the abaxial side d) Two microsporangia on the adaxial side

231. The algae used in space research is
a) *Cephaleuros* b) *Gelidium* c) *Chlorella* d) *Gracilaria*

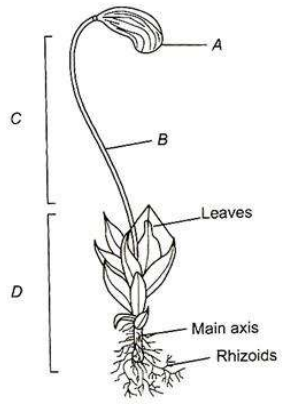
232. Horse tails and ferns are belongs to
a) Gymnosperms b) Bryophytes c) Mosses d) Pteridophytes

233. Chloroplasts, with pyrenoid like structures are found in the leaves of
a) *Funaria* b) *Cycas* c) *Selaginella* d) *Zea mays*

234. Bryophytes mostly occur in
a) Dry area b) Terrestrial area
c) Humid, damp and shaded localities d) in water

235. The number of prothallial cells in male gametophyte of *Pinus* is
a) 2 b) 1 c) 3 d) 0

236. *A*, *B*, *C* and *D* in given figure represents



a) A-Apophysis, B-Capsule, C-Sporophyte, D-Gametophyte
b) A-Capsule, B-Seta, C-Sporophyte, D-Gametophyte
c) A-Apophysis, B-Seta, C-Gametophyte, D-Sporophyte
d) A-Apophysis, B-Capsule, C-Gametophyte, D-Sporophyte

237. The body structure of green algae may be
a) Colonial b) Unicellular c) Filamentous d) All of these

238. Which of the following gymnospermic corolloid roots are associated with N_2-fixing cyanobacteria?
a) *Pinus* b) *Cycas* c) *Cedrus* d) *Ginkgo*

239. Natural system of classification was developed by
a) Linnaeus
b) Engler and Prantl
c) Bentham and Hooker
d) Aristotle

240. Angiosperms differ from gymnosperms in having
a) Fruits b) Cotyledon c) Tracheids d) Broad leaves

241. Consider the following statements regarding gymnosperms and choose the correct option.
I. In gymnosperms, the male and female gametophytes have an independent existence.
II. The multicellular female gametophyte is retained within the megasporangium.
III. The gymnosperms are hterosporous.
Of these statements
a) I and II are true but III is false
b) I and III are true but II is false
c) II and III are false but I is true
d) II and III are true but I is false

242. Pollen tube carries
a) Two male gametes b) One male gamete c) Three sperms d) Four sperms

243. 'Sanjeevani booti' is
a) *Selaginella kraussiana*
b) *Selaginella chrysocaculos*
c) *Selaginella bryopteris*
d) None of the above

244. *Dryopteris* differs from *Funaria* in having
a) An independent gametophyte
b) An independent sporophyte
c) Swimming antherozoids
d) Archegonia

245. Retort cells occur in
a) *Funaria* b) *Pogonatum* c) *Porella* d) *Sphagnum*

246. *Chlamydomonas* occurs in
a) Freshwater b) Ponds and lake c) River d) Ocean

247. Select the correct statements.
a) Absorption of water by seeds and dry wood are examples of facilitated diffusion
b) The apoplast is the system of interconnected protoplasts
c) *Pinus* seeds cannot germinate and establish without the presence of mycorrhizae
d) The translocation in phloem is unidirectional, whereas in the xylem it is bidirectional

248. The members of Chlorophyceae are usually green due to the dominance of pigments
a) Chlorophyll-*a*
b) Chlorophyll-*b*
c) Chlorophyll-*a* and *b*
d) Chlorophyll-*c*

249. Winged pollen grains are found in
a) *Cycas* b) *Pinus* c) *Pteris* d) *Selaginella*

250. Which region is responsible for origin of rhizoids in *Funaria*?
a) Lateral region b) Dorsal region c) Ventral region d) Basal region

251. Endosperm formation begin with
a) The establishment of the suspensor
b) The fusion of the antipodals
c) The fertilisation of the polar nuclei
d) The syncytial development of the embryo

252. Gametophyte is the dominant phase in the life cycle of
a) *Hibiscus* b) *Nephrolepis* c) *Cycas* d) *Riccia*

253. Which one of the following is a vascular cryptogam?
a) *Equisetum* b) *Ginkgo* c) *Marchantia* d) *Cedrus*

254. Consider the following statements

I. The liverworts grow usually in moist, shady habitats such as banks of streams, marshy ground, damp soil, bark of trees and deep in the woods
II. The leafy members of liverwort have tiny leaf-like appendages in two rows on the stem-like structures
Choose the correct option
a) I is true, II is false b) I is false, II is true c) I and II are true d) I and II are false

255. The giant red wood tree (*Sequoia*) is a/an
a) Angiosperm b) Fern c) Pteridophyte d) Gymnosperm

256. Which of the following statements is wrong about bryophytes?
a) Fertilization takes place in presence of water
b) Gametophytic place is dominant in life cycle
c) Sporophyte is physiologically dependent on gametophyte
d) Zygote undergoes meiosis to produce sporophyte

257. Choose the correct statement about liverworts
I. In liverworts sexual reproduction occurs by the fusion of antherozoids and egg, which are produced in anthridium and archegonium, respectively
II. Both male and female sex organs may be present on same thalli or different thalli
III. Zygote give rise to sporophyte, which is differentiated into food, seta and capsule
IV. Some cells of capsule undergoes meiosis and give rise to haploid spores
a) I, II and III b) II, III and IV c) I, III and IV d) I, II, III and IV

258. Spore dissemination in some liverworts is aided by
a) Elaters b) Indusium c) Calyptras d) Peristome teeth

259. If a sporangium is derived from a single cell, it is called
a) Leptosporangiate b) Eusporangiate c) Heterosporangiate d) Monosporangiate

260. Dispersal of spores in fern takes place through
a) Annulus b) Stomium c) Both (a) and (b) d) Indusium

261. Members of class-Rhodophyceae are known as red algae due to the presence of red pigment
a) *r*-phycoerythrin b) *r*-xanthophyll c) Phycoerythrin d) Fucoxanthin

262. A protein rich green alga is
a) *Chlorella* b) *Spirulina* c) *Spirogyra* d) *Ulothrix*

263. Water bloom is generally caused by
a) Green algae b) Blue-green algae c) Bacteria d) *Hydrilla*

264. Phylogenetic system of classification is based upon
a) Evolutionary relationship of organism b) Cytological information
c) Structural embryology d) All of the above

265. Both heterospory and circinate ptyxis occur in
a) *Dryoteris* b) *Pinus* c) *Cycas* d) *Funaria*

266. In *Pinus*, the endosperm is
a) Haploid b) Diploid c) Triploid d) Tetraploid

267. How many pyrenoids are present in the members of class-Chlorophyceae?
a) One b) Two c) One to many d) Pyrenoids are absent

268. Choose the incorrect statement
a) Double fertilisation is unique to gymnosperms and monocotyledons
b) *Sequoia*, a gymnosperm, is one of the tallest trees
c) Phaeophyceae members possess chlorophyll-*a, c,* carotenoids and xanthophylls
d) Moss is a gametophyte, which consists of two stages namely, protonema stage and leafy stage

269. A protein rich blue-green alga is
a) *Chlorella* b) *Spirulina* c) *Spirogyra* d) *Ulothrix*

270. Spores with chloroplast is present in
a) *Selaginella* b) *Equisetum* c) *Puccinia* d) *Rhizopus*

271. The leaves in pteridophytes are small as in

a) *Volvox* b) *Marsilia* c) *Selaginella* d) *Azolla*

272. In bryophytes antheridium produces ...A... and female sex organ archegonium produces ...B... . Here A and B refer to
a) A-uniflagellate antherozoids; B-two egg
b) A-biflagellate antherozoids; B-one egg
c) A-non-motile antherozoids; B-one egg
d) A-non-motile antherozoids; B-two egg

273. In case of heteroporous pteridophyte the gametophyte is
a) Always dioecious
b) Monoecious
c) May be monoecious or dioecious
d) Vascular

274. Oogamous type of fusion is found in
a) *Volvox* and *Fucus* b) *Chlamydomonas* c) *Spirogyra* d) All of these

275. Fern gametophyte bears
a) Archegonia b) Antheridia c) Sporangia d) Both (a) and (b)

276. Gametophyte is dominant stage in the life cycle of
a) Bryophyta b) Pteridophyta c) Angiosperms d) Gymnosperms

277. The plant body of bryophytes is
a) More differentiated than that of algae
b) Equally differentiated to that of algae
c) Less differentiated than that of algae
d) Is not differentiated at all

278. In gymnosperms the development of grains take place with in the
a) Megasporangia
b) Microsporangia
c) Male gametophyte
d) Female gametophyte

279. In angiospermic fertilisation, one male gamete fuses with egg to form ...A... , this event is called ...B... . Identify A and B and choose the correct option
a) A-endosperm; B-syngamy
b) A-zygote; B-syngamy
c) A-embryo; B-triple fusion
d) A-endosperm; B-triple fusion

280. Classification on the basis of all observed characters is known as
a) Number and codes taxonomy
b) Numerical taxonomy
c) Countable taxonomy
d) Numerical information taxonomy

281. *Spirogyra*, *Volvox* and *Chlamydomonas* shows
a) Haplontic life cycle
b) Diplontic life cycle
c) Haplo-diplontic life cycle
d) Diplobiontic life cycle

282. When moss spores germinate, the form
a) Leafy gametophyte b) Capsule c) Protonema d) Rhizoids

283. A fern differs from a moss in having
a) Swimming archegonia
b) Swimming antherozoids
c) Independent gametophytes
d) Independent sporophytes

284. If the chromosome number in the leaf of *Funaria* is 20, what will be the chromosome number in the spores?
a) 10 b) 40 c) 20 d) 5

285. Pteridophytes differ from bryophytes in the
a) Motility of sperms
b) Vasculature
c) Archegonia
d) Alternation of generation

286. *Cycas* stem shows
a) Porous wood b) Manoxylic wood c) Pycnoxylic wood d) Ring porous wood

287. In which group of the following would you place the plants having vascular tissue and lacking seeds?

a) Algae b) Fungi c) Bryophytes d) Pteridophytes

288. In brown algae, food is stored in the form of
a) Mannitol b) Laminarin starch c) Both (a) and (b) d) Algin

289. Haploid brown, hairlike, delicate unicellular outgrowths are
a) Root hairs of gymnosperms b) Paraphysis of mosses
c) Root nodules of pulses d) Rhizoids of fern plants

290. Gymnosperms produce neither flower nor fruit because they do not possess
a) Embryo b) Ovary c) Ovule d) Seed

291. In mosses the second gametophytic stage is leafy stage. Consider the following statements about leafy stage
I. Leafy stage is produced from the secondary protonema as a lateral bud
II. They consist of upright, slender axes bearing spirally arranged leaves
III. They are attached to the soil through multicellular rhizoids
IV. This leafy stage bears the sex organ
Which of the statements given above are correct?
a) I, II and III b) I, III and IV c) II, III and IV d) I, II, III and IV

292. Alginic acid is found in the cell wall of
a) *Gigartina* b) *Laminaria* c) *Gelidium* d) *Scytonema*

293. Incorrect character of brown alga is
a) Chlorophyll-*a* and *b* present b) They remain attached
c) Chlorophyll-*a* and *c* present d) Presence of fucoxanthin

294. Plants forming spores but lacking seed and vascular tissue are
a) Gymnosperms b) Angiosperms c) Bryophytes d) Pteridophytes

295. Living fossil is
a) *Ginkgo biloba* b) *Gnetum ulva* c) *Pinus roxburghii* d) *Cycas revoluta*

296. *Acetabularia* is a
a) Single-celled marine green alga b) Multicelled marine green alga
c) Single-celled freshwater green alga d) Multicelled freshwater green alga

297. Which of these is mismatched?
a) Phaneros - Visible b) Kryptos - Concealed
c) Gymno - Naked d) Bryon - Liverworts

298. The sclerenchyma of the hypodermis in the *Pinus* needle helps in
a) Increasing the absorptive surface of the cell b) Checking transpiration
c) Mechanical support d) Photosynthesis

299. Most algal genera are haplontic some of them such as ...A..., ...B... and ...C... are haplo-diplontic. Here A, B and C refers to
a) A-*Ectocarpus*, B-*Polysiphonia*, C-*Kelps*
b) A-*Volvox*, B-*Spirogyra*, C-*Kelps*
c) A-*Spirogyra*, B-*Polysiphonia*, C-*Ectocarpus*
d) A-*Volvox*, B-*Kelps*, C-*Ectocarpus*

300. From which of the following algae, agar-agar is commercially extracted?
I. *Gracilaria* II. *Fucus*
III. *Sargassum* IV. *Gelidium*
V. *Turbinaria*
a) III and V b) II and III c) IV and V d) I and IV

301. In gymnosperms one of the megaspores develops into multicellular structure called multicellular ..... that bears two or more archegonia
a) Male gametophyte
b) Female gamete
c) Female gametophyte

d) Male gamete

302. If the leaf of *Funaria* has 5 chromosomes the primary protonema will have
a) 10 chromosomes b) 5 chromosomes c) 15 chromosomes d) 20 chromosomes

303. In gymnosperms the reduced gametophyte is called
a) Endospore b) Pollen grain c) Ovule d) Aplanospore

304. Double fertilisation occurs among
a) Algae b) Bryophytes c) Angiosperms d) Gymnosperms

305. In algae asexual reproduction occurs by the production of different types of spores. The most common type of spore is
a) Aplanospore b) Endospore
c) Zoospore d) Oospore

306. In green algae vegetative reproduction takes place by
a) Fragmentation b) Different types of spores
c) Both (a) and (b) d) Conidia

307. Photosynthetic pigments of class-Rhodophyceae (red algae) are
a) Chlorophyll-*a, b* b) Chlorophyll-*a, c* c) Chlorophyll-*a, d* d) Chlorophyll-*a, c* and *d*

308. In a moss, the sporophyte
a) Is partially parasitic on the gametophyte b) Produces gametes that give rise to the gametophyte
c) Arises from a spore produced from the gametophyte d) Manufactures food for itself, as well as for the gametophyte

309. Fruits are not found in gymnosperms because
a) They are not seedless b) They are not pollinated
c) They have no ovary d) Fertilization does not takes place

310. Haplontic life cycle is followed by
a) Algae b) Fungi c) Gymnosperms d) Angiosperms

311. Which of the following pteridophytes is heterosporous
a) *Psilotum* b) *Adiantum* c) *Equsetum* d) *Salvinia*

312. Resin duct of gymnospermous stem is an example of
a) Lysigenous cavity b) Lysogenous cavity
c) Schizogenous cavity d) Schizolysigenous cavity

313. Fertilisation is the process of
a) Transfer the pollen from anther to stigma
b) Fusion of one male gamete with the egg
c) Formation of seed from ovule
d) Fusion of male nucleus with polar nuclei

314. Angiosperms are also called
a) Seed less plants b) Fruits less plants c) Flowering plants d) All of these

315. Read carefully the following statements
I. *Funaria* possesses unicellular and unbranched rhizoids
II. Gemmae are asexual buds, which originate from small receptacles called gemma cups
III. The *Sphagnum* plants have magnificent property of retaining water
IV. Mosses along with lichens are the first organisms to colonise rocks
Which of the statements given above are correct?
a) I, II and III b) I, III and IV c) II, III and IV d) I, II, III and IV

316. In brown algae asexual reproduction takes place by
a) Aplanospores (apple-shaped and non-motile)
b) Biflagellate gametes (pear-shaped and have two unequal flagella)
c) Endospores (round and have one flagella)
d) Multifilagellate gametes and are sickle-shaped

317. Sporophyte of fern produces
a) Pollen grains b) Spores c) Seeds d) Gametes

318. Fern spores are usually
a) Haploid b) Diploid c) Triploid d) Tetraploid

319. In *Cycas*, diploxylic vascular bundles are found in
a) Stem b) Root c) Leaflet d) Rachis and leaflet

320. A group of plants which are autotrophs, their sex organs are non-jacketed and whose zygotes secrete thick wall are called
a) Phycophytes b) Lichens c) Bryophytes d) Thallophytes

321. Peat moss is
a) *Funaria* b) *Fern* c) Algae d) *Sphagnum*

322. The main plant body in pteridophyte is
a) Sporophyte ($2n$) which is differentiated into root, stem and leaf
b) Sporophyte having no root, stem and leaf
c) Gametophyte (n) which is differentiated into root, stem and leaf
d) Gametophyte having no root, stem and leaf

323. Consider the following statement regarding heterospory
I. Genera like *Selaginella* and *Salvinia* which produce two kinds of spores, macro (large) and micro (small) spores, are known as heterosporous
II. The megaspores and microspores germinate and give rise to female and male gametophyte respectively
III. The female gametophytes in these plants are retained on the parent sporophytes for variable periods
IV. The development of the zygotes into young embryos takes place within the female gametophytes
V. This event is a precursor to the seed habit considered an important step in evolution
a) I, II and III b) II, IV and V c) III, IV and V d) I, II, III, IV and V

324. Common characteristic between bryophytes and pteridophytes is
a) Vascularization
b) Terrestrial habit
c) Water for fertilization
d) Independent sporophyte

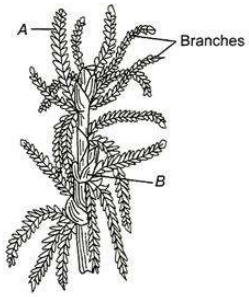
325. Two very distinst generations are found in the life cycle of
a) Bacteria b) *Spirogyra* c) *Volvox* d) Ferns

326. Prothallus of the fern produces
a) Spores b) Gametes c) Both (a) and (b) d) Cones

327. Dominant generation in bryophytes is
a) Capsule b) Sporophyte c) Gametophyte d) Seta

328. In gymnosperms, pollination takes place by
a) Water b) Air c) Insects d) Animals

329. *A* and *B* in given figure represents



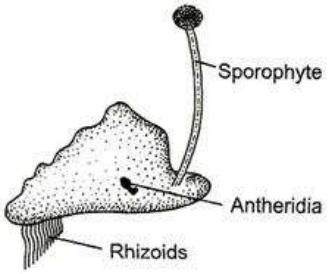
a) A-Gametophyte branch, B-Sporophyte branch
b) A-Antheridial branch, B-Archegonial branch
c) A-Archegonial branch, B-Antheridial branch
d) A-Sporophyte branch, B-Gametophyte branch

330. Incipient nucleus is found in
a) Myxophyceae b) Phaeophyceae c) Rhodophyceae d) Chlorophyceae

331. Conifers differ from grasses in the
a) Production of seeds from ovules
b) Lack of xylem tracheids

c) Absence of pollen tubes
d) Formation of endosperm before fertilization

332. Which of the following is correct the ploidy level in labelled organs of plant shown in given figure?



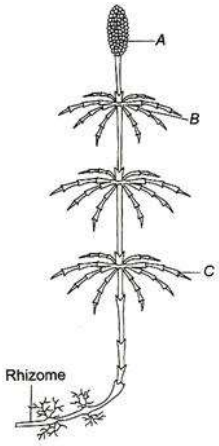
a) Sporophyte-Diploid ($2n$)
b) Antheridia-Haploid (n)
c) Rhizoids – Haploid (n)
d) All of the above

333. Non-motile, greatly thickened, asexual spore in *Chlamydomonas* is
a) Carpospores
b) Akinetes
c) Aplanospores
d) Hypnospores

334. Consider the following statements about brown algae
I. The largest kelps are *Nereocystis* and *Macrocystis*
II. Brown algae have gelatinous coating outside the, cellulosic cell wall called algin
III. Food obtained from *Laminaria saccharina* is known as 'Kombu'
Which of the statements given above are correct?
a) I and II
b) I and III
c) II and III
d) I, II and III

335. Double fertilisation is characteristic feature of
a) Gymnosperms
b) Angiosperms
c) Monocoats
d) Bryophytes

336. Identify A, B and C in the following figure and choose the correct option



a) A-Strobilus, B-Node, C-leaves
b) A-Strobilus, B-node, C-branch
c) A-Sporophyll, B-Node, C-Internode
d) A-Sporophyll, B-Internode, C-Node

337. Reproductive parts of an angiospermic plant are
a) Stamen
b) Pistil
c) Both (a) and (b)
d) Shoot

338. After fertilisation the ovaries develop into
a) Fruit
b) Seed coats
c) Seed
d) Integuments

339. Which of the following algae are suitable for human consumption?
a) *Laminaria* and *Fucus*
b) *Gracilaria* and *Chondrus*
c) *Porphyra* and *Spirogyra*
d) *Rhodymania* and *Porphyra*

340. In *Ulothrix*, meiosis occurs in
a) Gamete
b) Zygospore
c) Zoospore
d) Thallus

341. Choose the correct statements about protonema
a) Juvenile stage of moss is protonema
b) It consists of slender, green, branching system of filaments
c) Develops directly from a spore

d) All of the above

342. Fruits are mature
a) Ovules b) Ovaries c) Flower d) Peduncles

343. Megasporophyll of *Cycas* is equivalent to
a) Stamen b) Sepal c) Petal d) Carpel

344. Mosses (along with lichen) are of great ecological importance because
a) They colonise on barren rocks and decompose rock
b) Its contribution to prevent soil erosion
c) Its contribution in ecological succession
d) All of the above

345. Microsporangia of *Cycas* occur over microsporophyll
a) Laterally b) Abaxially c) Adaxially d) Marginally

346. The plant body of bryophytes are thallus like, prostrate or erect and attached to substratum with the help of
a) Unicellular or multicellular roots
b) Unicellular or multicellular rhizoids
c) Multicellular roots
d) Unicellular roots

347. Heterospory is the production of
a) Sexual and asexual spores
b) Large and small spores
c) Haploid and diploid spores
d) Diploid and tetraploid spores

348. Bryophytes include
a) Liverworts and mosses
b) Lycopods and mosses
c) Lycopods and liverworts
d) Liverworts and *Volvox*

349. About 90% of the total green algae is found in
a) Marine environment
b) Freshwater environment
c) Rivers
d) Terrestrical environment

350. Mosses are attached to substratum by
a) Roots b) Capsule c) Rhizoids d) Main axis

351. Oil is reserve food in
a) *Chlamydomonas* b) *Oedogonium* c) *Vaucheria* d) *Chara*

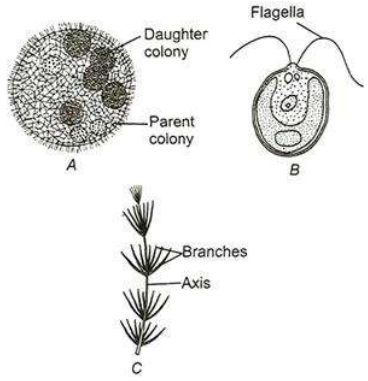
352. Coralloid roots of *Cycas* are useful in
a) N_2 – fixation b) Absorption c) Transpiration d) Fixation

353. The type of pollination in *Cycas* is
a) Entomophily b) Hydrophily c) Anemophily d) Malacophily

354. Spore of *Funaria* on germination gives rise to
a) Protonema b) Sporophyte c) Prothallus d) Capsule

355. Eutrophication is the result of
a) Bryophyte
b) Algae and aquatic plants
c) Gymnosperm
d) Pteridophyte

356. Identify the given figures of algae and select the correct option



a) A-*Chlamydomonas*, B-*Chara*, C-*Volvox* b) A-*Volvox*, B-*Chlamydomonas*, C-*Chara*
c) A-*Chara*, B-*Laminaria*, C-*Volvox* d) A-*Porphyra*, B-*Polysiphonia*, C-*Fucus*

357. If number of chromosomes in foot of fern embryo is 8, what should be the number in its spores?
a) 4 b) 8 c) 23 d) 16

358. Agar-agar is obtained from
a) *Chlorella* b) *Spirogyra* c) *Ulothrix* d) *Gelidium*

359. The alga rich in protein is
a) *Chlorella* b) *Ulothrix* c) *Laminaria* d) *Nostoc*

360. A typical of angiospermic embryo sac is usually
a) One celled b) Three celled c) Five celled d) Seven celled

361. Female reproductive part of bryophytes is
a) Antheridium b) Oogonium c) Archegonium d) Sporangium

362. Which of the following group of marine algae are used as food?
a) *Chlamydomonas, Volvox* and *Gracilaria*
b) *Porphyra, Laminaria* and *Sargassum*
c) *Laminaria* and *Gracilaria*
d) *Porphyra* and *Chlamydomonas*

363. *Chlamydomonas nivalis* is responsible for
a) Red snow b) Red rust of tea c) Yellow snow d) Brown snow

364. The thallus of *Volvox* is called
a) Trichome b) Coenobium c) Coenocytes d) Parenchymatous

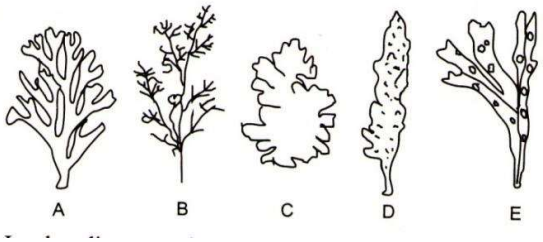
365. Number of peristomial teeth in moss is
a) 16 + 16 b) 16 + 32 c) 8 + 16 d) 32 + 32

366. Plants have ..... in their life cycle
a) Asexual generations only b) Sexual generations only
c) Alternation of generations d) Haplontic generations only

367. The only living fossil, known by the name of 'maiden hair tree' is
a) *Thuja* b) *Pinus* c) *Ginkgo* d) *Araucaria*

368. Chloroplast in *Ulothrix* is
a) Stellate b) Cup-shaped c) Ribbon-shaped d) Girdle-shaped

369.



In the diagram given above, the algae have been labeled as 'A', 'B', 'C', 'D', and 'E'. These algae are respectively identified as
a) *Dictyota*, *Polysiphonia*, *Porphyra*, *Fucus* and *Laminaria*
b) *Porphyra*, *Dictyota*, *Laminaria*, *Fucus* and *Polysiphonia*
c) *Dictyota*, *Polysiphonia*, *Porphyra*, *Laminaria* and *Fucus*
d) *Fucus*, *Porphyra*, *Dictyota*, *Polysiphonia* and *Laminaria*

370. The members of brown algae have
a) Chlorophyll-*a*, chlorophyll-*b*, xanthophylls b) Chlorophyll-*a*, chlorophyll-*c*, xanthophylls and carotenoids
c) Fucoxanthin and xanthophylls d) Chlorophyll-*a* and xanthophylls

371. In the prothallus of a vascular cryptogam, the antherozoids and eggs mature at different times. As a result
a) There is no change in success rate of fertilization b) There is high degree of sterility
c) One can conclude that the plant is apomictic d) Self-fertilization is prevented

372. In flowering plants meiosis occurs at the time of
a) Formation of buds
b) Germination of seed
c) Formation of root primordia
d) Formation of pollen grains

373. Which of the following is an important source of edible protein?
a) *Spirogyra* b) *Porphyra* c) *Spirulina* d) *Cephaleuros*

374. Floridian starch is reserve food in
a) Rhodophyceae b) Phaeophyceae c) Chlorophyceae d) Xanthophyceae

375. *Chlamydomonas* shows
a) Isogamy b) Anisogamy c) Both (a) and (b) d) Oogamy

376. Mosses are
a) Green
b) Leafy
c) Upright and radial in symmetry
d) All of the above

377. The site of photosynthesis in blue-green algae is
a) Chromatophores b) Mitochondria c) Chloroplast d) Root hair

378. In gymnosperm, the leaves are well-adapted to withstand extremes of temperature, humidity and wind. What are the xeric characters in conifers?
a) Needle-like leaves b) Thick cuticle c) Sunken stomata d) All of these

379. Vegetative reproduction in *Cycas* occurs by
a) Bulbils b) Sporophylls c) Fission d) Scale leaves

380. Classification done on the basis of cytological information, chromosome structure and their behavior, is known as
a) Molecular classification
b) Cytotaxonomy
c) Chemotaxonomy
d) Karyotaxonomy

381. Choose the correct statements for the sporophyte of bryophytes,
I. sporophyte is multicellular, not free living but attached to the gametophyte for nourishment from it
II. some cells of the sporophyte under go meiosis to produce haploid spores
III. these spores germinate to produce gametophyte
a) I and II b) I and III c) II and III d) I, II and III

382. In mosses vegetative reproduction takes place by
a) Fragmentation and budding in the secondary protonema
b) Gemmae formation and endospore formation
c) Gemmae and tubers formation
d) Protonema

383. Eight nucleated female gametophyte is found in
a) Bryophytes b) Gymnosperms c) Angiosperms d) Pteridophytes

384. Vasculature is poorly developed, pith has mucilage canals, parenchyma and medullary rays are abundant in
a) *Cycas* b) *Pinus* c) *Selaginella* d) *Funaria*

385. When a produces two kind of spores, the condition is known as
a) Homospory b) Heterospory c) Apospory d) Sporogenesis

386. Artificial system of classification was given by
a) Aristotle b) Linnaeus c) Theophrastus d) Haeckel

387. In algae, vegetative reproduction mainly takes place by
a) Budding b) Akinetes c) Fragmentation d) Heterocyst

388. Which of the following plant group lack true roots, stem and leaves?
a) Angiosperms b) Gymnosperms c) Pteridophytes d) Bryophytes

389. The characteristic of blue-green algae is
a) DNA without histone
b) Nuclear membrane absent

c) 70 S ribosome d) All of these

390. Father of Indian Bryology is
a) Raj Kumar b) S R Kashyap c) Maheshwari d) Khurana

391. In which of the following, pyrenoids are present?
a) *Marchantia* b) *Riccia* c) *Anthoceros* d) All of these

392. In which of the following features, *Cycas* resembles with angiosperms?
a) Presence of vessels b) Circinate vernation
c) Dichotomously branched leaves d) Pollen tube is the carrier of male gametes

393. Megasporophyll is the term used in gymnosperm to denote
a) Carpel b) Leaves c) Female cone d) Stamens

394. Haplo-diplontic life cycle is followed by
a) Bryophytes and pteridophytes b) Algae and bryophytes
c) Angiosperm and gymnosperm d) Bryophytes and gymnosperm

395. Green alga contains
a) Chlorophyll-*a* and *b* b) Starch c) Carotenoid d) All of these

396. Ectophloic siphonostele is found in
a) *Adiantum* and *Cucurbitaceae* b) *Osmunda* and *Equisetum*
c) *Marsilea* and *Botrychium* d) *Dicksonia* and maiden hair fern

397. Roots is some gymnospermic genera have fungal association in the form of ...A... in ...B.... Here, A and B refers to
a) A-mycorrhiza; B-*Pinus* b) A-mycorrhiza; B-*Cycas*
c) A-lichen; B-*Pinus* d) A-lichen; B-*Cycas*

398. *Sphagnum* a moss, is used as a packing material for transporting living materials because of its
a) Water holding capacity b) Creeping capacity
c) Alkaline nature as it does not undergo decay d) All of the above

399. Which of the following is true about bryophytes?
a) They are thalloid b) They contain chloroplast
c) They possess archegonia d) All of the above

400. In *Spirogyra*,
a) Filaments in which lateral conjugation occur are homothallic
b) Filaments in which sealariform conjugation occur are homothallic
c) Filaments in which lateral conjugation occur are heterothallic
d) A sexual reproduction occurs by zoospores

401. The protonema is a stage in the life cycle of
a) *Riccia* b) *Funaria* c) All bryophytes d) *Pinus*

402. Identify the alga known for a biological activity called bioluminescence.
a) *Spirogyra* b) *Chlorella* c) *Cyclotella* d) *Noctiluca*

403. The moss plant is
a) Sometimes gametophyte and sometimes sporophyte
b) Predominantly gametophyte with sporophyte attached to it
c) Gametophyte
d) Sporophyte

404. Flagellated male gametes are present in all the three of which one of the following sets?
a) *Anthoceros*, *Funaria* and *Spirogyra* b) *Zygnema*, *Saprolegnia* and *Hydrilla*
c) *Fucus*, *Marsilea* and *Calotropis* d) *Riccia*, *Dryopteris* and *Cycas*

405. In brown algae, brown colour is due to presence of
a) Carotenoids b) Fucoxanthin c) Phycoerythrin d) Chlorophyll

406. *Nostoc* fixes dinitrogen in symbiotic association with the following
I. *Alnus* II. *Gunnera*
III. *Anthoceros* IV. *Casuarina*

a) I and II b) II and III c) I and III d) I and IV

407. The members of Chlorophyceae usually have a rigid cell wall made up of
a) Cellulose (outer layer) and algin (inner layer)
b) Pectose (inner layer) and peptidoglycan (outer layer)
c) Cellulose (inner layer) and pectose (outer layer)
d) Chitin (inner layer) and pectose (outer layer)

408. Zygotic meiosis takes place in
a) *Chlamydomonas* b) Bryophytes c) *Pinus* d) *Dryopteris*

409. Which of the following is correct for *Cycas* reproduction?
a) Zooidogamy is followed by siphonogamy b) Siphonogamy is followed by zooidogamy
c) Siphonogamy only d) Zooidogamy

410. In *Pinus*, the third tier of embryonal cells formed below is known as
a) Rosette tier b) Suspensor tier c) Embryonal tier d) Free-nuclear tier

411. Kingdom-Plantae includes
a) Algae, bryophytes and pteridophytes
b) Algae, bryophytes, pteridophytes, gymnosperms and angiosperms
c) Algae, fungi, peteridophytes, gymnosperms and angiosperms
d) Algae, pteridophytes, gymnosperms and angiosperms

412. Moss spore germinate to form
a) Sporophyte b) Protonema c) Seta d) Capsule

413. Pteridophytes mostly occur in
a) Cool, damp and shady places
b) Hot and sunny places
c) Dry and humid areas
d) In water

414. Protonema is the juvenile filamentous state in the life cycle of
a) *Funaria* b) *Riccia* c) *Marchantia* d) *Laminaria*

415. In which way, mosses affects the quality of soil?
a) Prevents soil erosion b) Add nutrients to the soil
c) Promotes soil degradation d) They do no affects soil in any way

416. Which one of the following is considered important in the development of seed habit?
a) Dependent sporophyte b) Heterospory
c) Haplontic life cycle d) Free-living gametophyte

417. In capsule of moss, shock absorbers are
a) Trabeculae b) Peristome teeth c) Seta d) Annulus

418. Haploid structure of *Funaria* is
a) Calyptra b) Protonema c) Apophysis d) Operculum

419. Which of the following statement is true about the sporophytic stage in plant life cycle?
a) The haploid generation
b) Generation that produces the gametes
c) Generation that produces the spores
d) Generation that produces vascular

420. Phylogenetic system of classification is also known as
a) Artificial system of classification b) Hutchinson's system of classification
c) Natural system of classification d) Whittaker system of classification

421. Transfusion tissue is present in the leaves of
a) *Dryopteris* b) *Cycas* c) *Pinus* d) Both (b) and (c)

422. Gametophytic generation is dominant stage in the life cycle of
a) Pteridophytes b) Angiosperms c) Gymnosperms d) Bryophytes

423. Pyrenoids are made up of

a) Core of starch surrounded by sheath of protein
b) Core of protein surrounded by fatty sheath
c) Proteinaceous centre and starchy sheath
d) Core of nucleic acid surrounded by protein sheath

424. In ferns and mosses, movement of antherozoids towards female component is called
a) Phototaxis b) Chemotaxis c) Hydrotropism d) Thigmotropism

425. Atleast a half of the total CO_2 fixation on earth is carried out by ...A... through ...B... . Here A and B refers to
a) A-bryophytes, B-respiration
b) A-algae, B-photosynthesis
c) A-pteridophytes, B-photosynthesis
d) A-fungi, B-respiration

426. Consider the following statements regarding reproduction in class-Chloropyceae.
I. Asexual reproduction is mainly by flagellated zoospores produced in zoosporangia.
II. The sexual reproduction shows considerable variation in the type and formation of sex cells and it may be isogamous, anisogamous and oogamous.
Which of the statements given above are correct?
a) Only I b) Only II c) I and II d) None of these

427. Laminarin and manitol of class-Phaeophyceae (brown algae) are
a) Proteins b) Complex carbohydrates
c) Lipoproteins d) Fat

428. Choose the correct statements.
a) Apophysis is the basal fertile part of the capsule in *Funaria* b) Apophysis is the apical sterile part of the microsporophyll in *Cycas*
c) Apospory is the development of sporophyte from vegetative cells of the gametophyte d) Apogamy is the development of gametophyte from vegetative cells of the sporophyte

429. The first Division, which comes under kingdom-Plantae is
a) Algae b) Fungi c) Cyanobacteria d) Blue-green algae

430. Microsporangia in gymnosperm are produced
a) On the middle portion of microsporophyll
b) On the lowerside of microsporophyll
c) On the middle portion of megasporophyll
d) At the extreme tip of microsporophyll

431. Spore of *Funaria* on germination produces
a) Protonema b) Antheridia c) Archegonia d) Vegetative body

432. Fusion of two gametes, which are dissimilar in size is termed as
a) Oogamy b) Isogamy c) Anisogamy d) Zoogamy

433. Heterosporous pteridophytes always produce
a) Monoecious gametophytes b) Dioecious gametophytes
c) Homothallic gametophytes d) None of the above

434. People recovering from long illness are often advised to include the alga *Spirulina* in their diet because it
a) Makes the food easy to digest b) Is rich in proteins
c) Has antibiotic properties d) Restores the intestinal microflora

435. A ring of multiciliate zoogonidium is found in
a) *Ulothrix* b) *Zygnema* c) *Oedogonium* d) *Chara*

436. Sterile part of *Cycas* microsporophyll is
a) Apophysis b) Sporophore c) Middle part d) Lower part

437. Which of the following is living fossil?
a) *Gnetum* b) *Cycas* c) *Ginkgo* d) Both (b) and (c)

438. Read carefully the following statements about angiospermic sexual fertilisation
I. Pollen tube carries the male gamete towards archegonia and discharge contents in the mouth of

archegonium
II. Male gamete fuses with egg to give rise zygote
III. Zygote develops into embryo and embryo into seeds
IV. Seeds are naked
Which of the statement given above are correct?
a) I and II b) I, III and IV c) I, II and IV d) I, II, III and IV

439. Which type of moss is *Funaria*?
a) Acrocarpous moss b) Pleurocarpous moss
c) Anacrogynous moss d) Cleistocarpous moss

440. Select the correctly matched ones.
I. Phaeophyceae - Mannitol
II. Rhodophyceae - Dictyota
III. Chlorophyceae - Non-motile gametes
IV. Rhodophyceae - r-phycoerythrin
a) I, II and III b) II, III and IV c) I and III d) I and IV

441. Algae have cell wall made up of
a) Cellulose, galactans and mannans b) Hemicelluloses, pectins and proteins
c) Pectins, cellulose and proteins d) Cellulose, hemicelluloses and pectins

442. Pyrenoids are present in the ….. in most of the green algae
a) Chloroplast b) Ribosome c) Plastids d) Chromoplast

443. Indusium is found in
a) Algae b) Ferns c) Moss d) *Cycas*

444. External fertilization occurs in majority of
a) Algae b) Fungi c) Liverworts d) Mosses

445. In the life cycle of mosses, the gametophyte has two stages (A and B). These stages can be called
a) A-Protonema; B-Leafy stage b) A-Protonema; B-Sporogonium
c) A-Sporophyte; B-Gametophyte d) A-Zygote; B-Spore mother cell

446. Number of meiosis for formation of 64 zygotes in angiosperm is 80 but in gymnosperms number of meiosis for formation of 64 zygotes will
a) 40 b) 80 c) 160 d) 20

447. In gymnosperm the microspores develop into a male gametophyte generation which
a) Is highly reduced and confined to only a limited number of cells
b) Is highly developed
c) Has an independent life
d) Both (a) and (c)

448. In a monoecious plant
a) Male and female sex organs are on different individuals
b) Male and female gametes are of two morphologically distinct types
c) Male and female sex organs are on the same individual
d) All the stamens are fused to form one unit

449. In which of the following, all listed genera belong to the same class of algae?
a) *Chara, Fucus, Polysiphonia* b) *Volvox, Spirogyra, Chlamydomonas*
c) *Porphyra, Ectocarpus, Ulothrix* d) *Sargassum, Laminaria, Gracillaria*

450. Which of the following is incorrect with respect to angiosperms?
a) Endosperm – Triploid b) Megaspore – Diploid
c) Pollen grain – Haploid d) Synergid – Haploid

451. In *Cycas* stem, open vascular bundle is characterized by
a) Phloem being sandwitched between xylem
b) Cambium present in between xylem and phloem
c) Xylem being sandwithced between phloem

d) Xylem and phloem occurring on different radii

452. Which green alga shows heterotrichous habit and may have given rise to terrestrial (land) habit?
a) *Chlamydomonas* b) *Fritschiella* c) *Vaucheria* d) *Ulothrix*

453. The characteristic features of bryophytes are
I. main plant body is gametophytic
II. main plant body is sporophytic
III. requirement of water for fertilisation
Which of the statements given above are correct?
a) I and II b) I and III c) II and III d) I, II and III

454. Which is the tallest gymnospermic tree species?
a) *Pinus* b) *Cycas*
c) *Ginkgo* d) Red wood tree Siquoia

455. Anisogamous means both gamete are
a) Similar in size and non-motile b) Dissimilar in size
c) Similar in size and motile d) Dissimilar in size and non-motile

456. Usually plant body of brown algae is differentiated into
a) Holdfast and frond b) Stripe and holdfast
c) Frond and stripe d) Holdfast, stipe and frond

457. *Ulothrix* releases zoospore during
a) Evening b) Morning c) Night d) Noon

458. The kidney-shaped covering of sorus in *Dryopteris*, is called
a) Placenta b) Ramentum c) Sporophyll d) Indusium

459. Pollen grains in *Pinus* are
a) Monosaccate b) Bisaccate c) Trisaccate d) Nonsaccate

460. Characteristic of fern is
a) Circinate venation b) Reticulate venation c) Parallel venation d) None of these

461. Protonema is the stage in the life cycle of
a) *Cycas* b) *Funaria* c) *Selaginella* d) *Mucor*

462. Which of the following plant cells is not surrounded by a cell wall?
a) Root hair cell b) Stem hair cell c) Gamete cell d) Bacterial cell

463. Top-shaped multiciliate male gametes and the mature seed, which bears only one embryo with two cotyledons, are characteristic features of
a) Polypetalous angiosperms b) Gamopetalous angiosperms
c) Conifers d) Cycads

464. Gametophytic and sporophytic phases are independent in
a) Pteridophytes b) Bryophytes c) Gymnosperms d) Phaeophytes

465. Which has vascular tissue, produces spores, but does not has seeds?
a) Bryophyta b) Pteridophyta c) Gymnosperms d) Angiosperms

466. Blue-green algae has
a) Chlorophyll-*b* b) Xanthophyll c) *c* phycocyanin d) Fucoxanthin

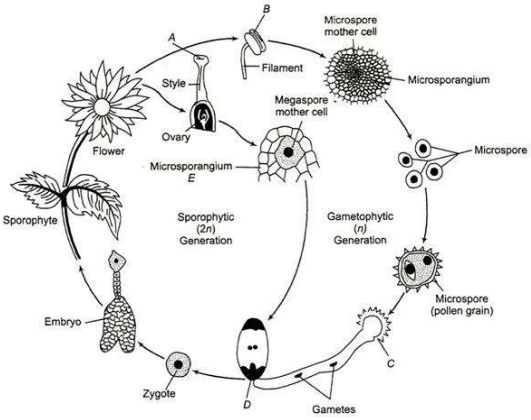
467. Which type of the rhizoids are present in *Riccia*?
a) Unicellular smooth b) Multicellular smooth
c) Unicellular smooth and tuberculated d) Multicellular smooth and tuberculated

468. Identify the alga, which exhibits diplontic life cycle.
a) *Spirogyra* b) *Chlamydomonas* c) *Fucus* d) *Volvox*

469. Gymnosperms are
a) Flowering plants
b) Seed bearing plants
c) Seedless flowering plants
d) Fruit bearing plants

470. Which of the following plant does not have *Rhizobium* containing root nodules?
a) *Phaseolus* b) *Pinus* c) *Pisum* d) *Cicer*

471. The diagram represents the life cycle of angiosperm. Choose the correct combination of labelling



a) A-Anther, B-Stigma, C-egg, D-Male gametophyte, E-ovule
b) A-Ovule, B-Stigma, C- Male gametophyte, D- Anther, E-Egg
c) A-Male gametophyte, B-Stigma, C-Anther, D-Egg, E-ovule
d) A-Stigma, B- Anther, C- Male gametophyte, D-Egg, E-ovule

472. Plants of this group are diploid and well adapted to extreme conditions. They grow bearing sporophylls in compact structures called cones. The group in reference is
a) Monocots b) Dicot c) Angiosperms d) Gymnosperms

473. After fertilisation the ovules develop into
a) Fruit b) Seed coats c) Seed d) Integuments

474. In comparition to pteridophyte, which one of the following algae exhibits diplontic life cycle?
a) *Volvox* b) *Chara* c) *Polysiphonia* d) *Focus*

475. Which one of the following plants functions as symbolic nitrogen-fixing plant?
a) *Azolla* b) *Cycas* c) Moss d) *Marchantia*

476. Which of the following is autotrophic?
a) Virus b) Mycoplasma c) *Nostoc* d) All of these

477. In some pteridophytes, sporophyll form distinct compact structures called ...A... in ...B... and ...C... Here A, B and C refers to
a) A-sporocarp, B-*Pogonatum*, C-*Selaginella*
b) A-spikelet, B-*Riccia*, C-*Marchentia*
c) A-strobilus, B-*Selaginella*, C-*Equisetum*
d) A-spike, B-*Fern*, C-*Salvinia*

478. *Kelp* (branched form) and *Sargassam* (filamentous form) belongs to
a) Green algae b) Brown algae c) Red algae d) Blue-green algae

479. In *Chlamydomonas*, the meiosis occurs in
a) Gamete b) Zygote c) Sporogonium d) Zoospore

480. Consider the following statements
I. The plants have magnificent property of retaining water. They can with hold water two hundred times more than their own weight. Hence, they are widely used by gardeners to keep cut plant parts moist during transportation and propagation
II. These plants grow as semiaquatic or submerged in acidic marshes. The older portions of plant die but do not decay due to peculiar germicidal properties
The above statements belongs to which of the following bryophitic plant?
a) *Pogonatum* b) *Funaria* c) *Sphagnum* d) *Marchantia*

481. First vascular plant is
a) Thallophyta b) Bryophyta c) Pteridophyta d) Spermatophyta

482. Female cone of *Pinus* is a

a) Modified needles b) Modified long shoot c) Modified dwarf shoot d) Modified scale

483. Algae include unicellular forms like ...A..., filamentous like ...B... and colonical forms like ...C... . Here A, B and C refer to
a) A-*Chlamydomonas*, B-*Volvox*, C-*Ulothrix*
b) A-*Ulothrix,* B-*Volvox*, C-*Chlamydomonas*
c) A-*Volvox*, B-*Ulothrix*, C-*Chlamydomonas*
d) A-*Chlamydomonas*, B-*Ulothrix*, C-*Volvox*

484. The gametophyte of moss is
a) Seta b) Capsule c) Zygote d) Protonema

485. In gymnosperms, the ovule is naked because
a) Ovary wall is absent b) Integuments are absent
c) Perianth is absent d) Nucellus is absent

486. Which of the following is not correctly matched?
a) *Chlamydomonas* - Unicellular flagellated b) *Laminaria* - Flattened leaf-like thallus
c) *Chlorella* - Unicellular non-flagellated d) *Volvox* - Colonial form, non-flagellated

487. Consider the following statements
I. Hydropterides are only plant among the heterosporous pteridophytes that are leptosporangiate
II. Heterosporous pteridophytes were the first land flora of earth
III. The difference in size between microspore and megaspore in *Seleginella kraussiana* is 1:200
IV. Female gametophyte of *Seleginella* mostly have single archenogium
Which of the above statement are correct?
a) I and II b) IV c) I, II and IV d) I, II, III and IV

488. Male sex organs in an angiospermic flower is
a) Stamen b) Pistil c) Carpel d) Shoot

489. Which of the following is an algal parasite?
a) *Volvox* b) *Ulothrix* c) *Porphyra* d) *Cephaleuros*

490. Mannitol is the stored food in
a) *Chara* b) *Porphyra* c) *Fucus* d) *Gracillaria*

491. Select the correct sequential arrangement of reproductive structures for pteridophytes
a) Sporophyll → Strobilli → Sporangia → Spore mother cell → Spores
b) Strobilli → Sporophyll → Sporangia → Spores
c) Spores → Sporophyll → Sporangia → Strobili
d) Spores → Sporangia → Sporophyll → Strobili

492. In gymnosperms, the seeds are naked because they lack
a) Integument b) Nucellus c) Pericarp d) Perianth

493. The relationship between the alga *Microcystis* and the surrounding fauna corresponds to
a) Ammensalism b) Parasitism c) Predation d) Exploitation

494. Bryophytes resemble algae in the following aspect.
a) Filamentous body, presence of vascular tissues and autotrophic nutrition
b) Differentiation of plant body into root, stem and leaves and autotrophic nutrition
c) Thallus like plant body, presence of roots and autotrophic nutrition
d) Thallus like plant body, lack of vascular tissues and autotrophic nutrition

495. Algae are also found in association with
a) Fungi b) Lichen c) Sloth bear d) Both (a) and (c)

496. The bryophytes are divided into
a) Mosses and liverworts b) Ferns and liverworts
c) Mosses and horse tails d) Ferns and horse tails

497. Consider the following statements
I. In red algae vegetative reproduction takes place by fragmentation
II. In red algae the food is stored as floridean starch, which is very similar to amylopectin and glycogen is

structure
III. Cell wall of red algae consists of chitin
Which of the statements given above are correct?
a) I and II b) I and III c) II and III d) All of these

498. In *Selaginella*, trabeculae are the modification of
a) Epidermal cells b) Cortical cells c) Endodermal cells d) Pericycle cells

499. Which one of the following formed in *Spirogyra* is different based on its nucleus?
a) Zygospore b) Azygospore c) Aplanospore d) Akinete

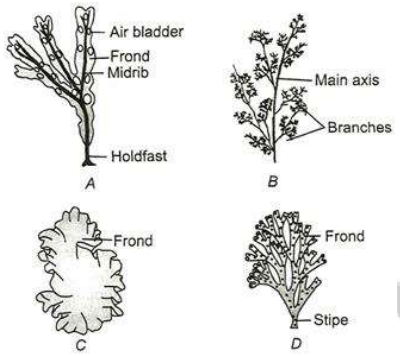
500. During development of embryo in archegonium of Bryophyta, its posterior part form protective embryo cover, which is called
a) Calyptra b) Paraphysis c) Apophysis d) Hypophysis

501. *Ectocarpus*, *Dictyota*, *Laminaria*, *Sargassum* and *Fucus* belongs to the class
a) Phaeophyceae b) Rhodophyceae c) Chlorophyceae d) Cynophyceae

502. Sexual reproduction in *Spirogyra* is an advanced feature because it shows
a) Morphologically differentiated sex organs b) Physiologically differentiated sex organs
c) Different sizes of motile sex organs d) Same size of motile sex organs

503. *Buxbaumia aphylla* is a classical example of
a) Parasitic bryophyte b) Saprophytic bryophyte
c) Symbiotic bryophyte d) Nitrogen fixing form

504. Identify the given figures of algae and select the correct option



a) A-*Volvox*, B-*Chlamydomonas*, C-*Chara*, D-*Porphyra* b) A-*Fucus*, B- *Polysiphonia*, C-*Porphyra,* D-*Dictyota*
c) A-*Fucus*, B-*Dictyota,*, C-*Porphyra*, D-*Polysiphonia* d) A- *Dictyota,* B-*Porphyra,* C-*Fucus*, D-*Polysiphonia*

505. Mosses and ferns are found in moist and shady places because both
a) Require presence of water for fertilization b) Do not need sunlight for photosynthesis
c) Depend for their nutrition on microorganisms, which can survive only at low temperature d) Cannot compete with sun-loving plants

506. Elater mechanism or spore dispersal is exhibited by
a) *Riccia* b) *Funaria* c) Liverworts d) *Marchantia*

507. Which of the following can be regarded as seedless vascular plants?
a) Angiosperms b) Gymnosperms c) Bryophytes d) Pteridophytes

508. Fern gametophyte shows …… nature.
a) Homothallic b) Fragmentation c) Heterothallic d) None of these

509. The peculiar feature of *Marchantia palmata* is
a) Absence of gemma cup b) Presence of androgynous receptacles
c) Absence of eaters d) All of the above

510. Chlorophyll-*a*, chlorophyll-*d* and phycoerythrin are characteristics of class
a) Phaeophyceae b) Xanthophyceae c) Chlorophyceae d) Rhodophyceae

511. Ramenta is the characteristic of
a) *Marchantia* b) *Funaria* c) *Dryopteris* d) None of these

512. Sperm of *Cycas* is
a) Multiflagellated and very large
b) Small and biflagellated
c) Multiflagellated and small
d) Large and biflagellated

513. Archegoniophore is present in
a) *Chara*
b) *Adiantum*
c) *Funaria*
d) *Marchantia*

514. In *Pinus*, male cone bears a large number of
a) Ligules
b) Anthers
c) Microsporophylls
d) Megasporophylls

515. Which one pair of examples will correctly represent the grouping spermatophyta according to one of the schemes of classifying plants?
a) *Rhizopus*, *Triticum*
b) *Ginkgo*, *Pisum*
c) *Acacia*, Sugarcane
d) *Pius*, *Cycas*

516. Read carefully the following statements about pteridophytes
I. They are called vascular cryptogams
II. They produce spores rather than seeds
IIII. They are used for medicinal purposes
IV. They are used as soil binders
V. They are frequently grown as ornaments
Which of the statements given above are correct?
a) I, II and V
b) II, IV and V
c) II, III, IV and V
d) I, II, III, IV and V

517. Corolloid roots are found in
a) Bryophytes
b) Pteridophytes
c) Gymnosperms
d) Angiosperms

518. Leaf in young condition in fern is called
a) Scale leaf
b) Sporophyll
c) Circinate ptyxis
d) None of these